Inc. 1910 Public Works

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December 27, 2018

David Domingo
Ground Water Unit, U.S. EPA Region 10
1200 Sixth Avenue, Suite 155, OCE-201
Seattle, Washington 98101
Via email: domingo.david@epa.gov

RE: City of Driggs Update: CWA-10-2018-0206

Dear Mr. Domingo,

The following letter summarizes activities the City of Driggs has undertaken to bring the Teton Valley Regional Wastewater Reclamation Facility into compliance. Some of these actions took place before the consent order was finalized, but are part of the City's efforts to achieve compliance and I believe are critical to resolving the issues at out wastewater treatment plant.

In summary we have spent the past 15 months testing our influent, effluent and performance of the wastewater treatment plant. This testing, through the various seasons, have identified two stretches which the plant has not meet our compliance levels for ammonia; mid-winter and early summer.

The mid-winter compliance issue appears to be due to low water temperatures at the plant which negatively affect the nitrifying bacteria. 12 Kilowatt in tank electric heaters were designed, ordered and delivered to mitigate the low water temperatures. The heaters are scheduled to be installed in early January.

The early summer issue appears to be flow related, as ammonia removal decreased when we saw significant increases in influent flows. The increase flow appear to be from ground water infiltration and illegal sump pump discharges into our collection system. An I/I reduction program was started last July and resulted in a 20% reduction of flows. This will be an ongoing project.

The attached timeline provides a brief synopsis of our actions from the past 15 months. I would be happy to provide additional information regarding any of the items below.

Signed,

Jay T. Mazalewski, PE
Director of Public Works

TIMELINE:

September 2017:

City began testing ammonia levels daily at the headworks and the outfall of the east and west treatment trains.

City contracted with Roberts Consulting to perform inhibition testing on our influent stream for 2 weeks. Tests were taken at two major collection points and the headworks of the treatment plant. Individual samples were taken hourly at these locations. Only two of the tests showed any inhibition. There does not appear to be a regular toxic constituent in our influent stream based on these results.

City began seeding the east train with liquid nitrifiers (MircoPlex NC). East train began nitrifying and met compliance levels within a week.

October 2017:

Reduced testing to M, W, F continued to seed 0.5lbs of Microplex NC to the east train.

City began seeding the west train with liquid nitrifiers (MircoPlex NC). West train began nitrifying and met compliance levels in about 10 days.

Lost nitrification in the west train when flows from the lagoons were added to the west train. East train continued to nitrify.

November 2017:

Reduced seeding Microplex NC to the east train to 0.5lbs on Monday and Friday.

East train continued to nitrify, no nitrification in the west train.

December 2017:

Continued to test ammonia levels, and started testing COD, and nitrates levels on M, W, F.

Continued to seed Microplex NC to the east train to 0.5lbs on Monday and Friday..

Began seeding the west train daily with BioWish Aqua as part of pilot project with the manufacturer.

East train continued to completely nitrify, no nitrification in the west train.

January 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Wastewater temperatures in the plant dropped below 8 degrees C.

East train continued to nitrify, but not to compliance levels. No nitrification in the west train.

Increased seeding amounts of MicroPlex to the east train, with no increase of ammonia reduction. East train removed about 50% of the ammonia.

Continued to seed the west train with BioWish Aqua. No ammonia removal seen in the west train.

Began researching temperature effects on nitrifying bacteria. Spoke with other cold weather operations and operators.

February 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F. Water temperatures fall below 7 degrees C and occasionally below 5 degrees C.

Reduced seeding Microplex NC to the east train to 0.5lbs on Monday and Friday. Continued daily seeding of Biowish Aqua in the west train.

East train continued to nitrify approximately 50% of the ammonia, but not to compliance levels. No nitrification in the west train.

Tested each cell of the east train to determine the location of nitrifying bacteria.

Began an experiment attempting to increase the water temperatures. Installed four temporary 1KW heaters for 36hrs in the east train cell 10, where it appeared nitrification was starting. Within 24 hours no ammonia was detected in the east train. East train continued to completely nitrify for 11 days.

Shipped a sample of our influent to BioWish manufacturing for testing. Results showed BioWish nitrifiers would not establish at temperatures below 8 degrees C.

March 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F. Water temperatures consistently below 7 degrees C and regularly below 6 degrees C.

Continued seeding Microplex NC to the east train to 0.5lbs on Monday and Friday. No seeding of the west train.

Repeated the experiment to attempt to increase the water temperatures. Installed four temporary 1KW heaters for 24hrs in the east train cell 10. Within 24 hours no ammonia was detected in the east train. East train continued to completely nitrify for 2 days. The 1KW heaters were run from generators as there is not adequate power infrastructure at the trains to keep them running full time.

Researched and contacted companies about methods to heat wastewater. Began running cost benefit analysis of different heating technologies.

April 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F. Water temperatures consistently above 7 degrees C and regularly above 8 degrees C.

Stopped seeding the east train, began seeding BioWish the west train.

East train completely nitrifying, no nitrification in the west train.

Equipment issues affect operations and testing for two weeks.

Compliance and Consent order issued and finalized.

May 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F. Water temperatures consistently above 10 degrees C and regularly above 12 degrees C.

No seeding in the east train, continued seeding Biowish Aqua in the west train.

East train completely nitrifying, no nitrification in the west train.

Equipment issues again affect operations and testing for two weeks.

Updated software to track east and west train temperatures (4 locations, 2 each train)

June 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

No seeding in the east train, restarted Biowish Aqua seeding in the west train.

East train completely nitrifying, no nitrification in the west train.

Flows dramatically increased to the WWTP, irrigation canals running and groundwater elevations are up contributing to I/I. Retention time reduced to less than 1 day.

Began looking for inflow/infiltration sources. Found 2 sump pumps discharging, 4 broken sewer services and multiple MH's with serious infiltrations.

Received conditional award of Idaho DEQ wastewater facilities planning grant.

End of June east train only removing 60% of ammonia.

July 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

No nitrification occurring in east or west trains.

Started seeding the east train with MicroPlex, continued seeding Biowish in the west train.

2nd week of July city hired a contractor to seal 6 MH's and fixed 3 broken services. Flows dropped by 20% to the WWTP.

Continued search for I/I sources, retention time still under 1 day.

Sent lagoon water samples to microbiology lab to determine if lagoon water was toxic to the nitrifying bacteria. Results came back negative and lagoon water was determined to be healthy.

August 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

No nitrification occurring in east or west trains at the start of the month, by late August east train was completely nitrifying.

Increased seeding the east train with MicroPlex, stopped seeding Biowish in the west train.

Flows decreased, retention time increased to over one day.

September 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Continued seeding Microplex NC to the east train to 0.5lbs on Monday and Friday. No seeding of the west train.

Began pumping lagoon water through both sides, no negative effects.

East train completely nitrifying. West train began nitrifying without seed, but not to compliance levels.

October 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Continued seeding Microplex NC to the east train to 0.5lbs on Monday and Friday. Started seeding Microplex NC to the west train.

East & west trains completely nitrifying.

Aquarius Technologies believes a latent toxin may be in sludge accumulated in each cell. PW Staff took 36 sludge samples from the basins and sent to Pace Analytical labs for toxicity analysis.

Finalized order for two 12KW over the side tank heaters. One heater will be installed in cell 10 of the east and west train. Heater can be controlled by the SCADA (telemetry system). They are designed to be removed in the summer months when water temperatures are higher.

November 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Continued seeding Microplex NC to the east and west train on Monday and Friday.

East & west trains completely nitrifying.

Retention time approximately 2-day, water temperatures above 10 degrees C.

Received sludge testing results, some issues identified with toxic accumulation further review needed.

Issued RFQ for engineering services related to wastewater planning grant. Grant will fund a study of the plant for capacity, ammonia issues, operation issues and study our collection system for I/I issues and other potential toxic/ammonia sources.

December 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Continued seeding Microplex NC to the east and west train on Monday and Friday.

East & west trains completely nitrifying for the beginning of the month. East only nitrifying 50% by the end of the month. West continued to nitrify all month.

12KW heater delivery delayed, plan on first week of January for installation.

Effluent temperature dropped below 9 degrees C, basin temperatures dropped below 8 degrees C. Temperature drop coincides with loss of nitrification in the east train.